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SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
BAYARD, EMMANUEL	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,030	WALTHO ET AL.	
	Examiner	Art Unit	
	Emmanuel Bayard	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3 and 5-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on 7/24/08 in which claims 1, 3 and 5-29 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 18-25 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101"). The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. . With regard to claim 18, it does not recite any hardware or physical components and the necessary connection between the components to constitute the claimed method. Therefore the claimed invention does not fall under any of the statutory classes of invention.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3 and 5-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar 20010024475 A1 in view of Ocenasek et al U.S Pub No 20040032912.

As per claims 1,18 and 26, Kumar teaches an apparatus, including: a digital processor to shift a digital baseband (see figs. 11, 15 and 17 elements 61, 60, 58) signal upward along a frequency spectrum by a selected amount to provide a first elevated frequency digital baseband signal (see fig.15 element 219) and a second elevated frequency digital baseband (see fig.15 element 209) signal derived from a phase-shifted version (see fig.15 element 205) of the digital baseband signal (see page 15 [0084-0085] and page 16 [0086-0089]).

However Kumar does not teach, wherein the selected amount is greater than about a bandwidth of the digital baseband signal.

Ocenasek et al teaches an up sampler device (see fig.2 element 226) for increasing the frequency of a digital baseband signal (see fig.2 elements Ich or Qch) which are provided to an I/Q modulator (see fig.2 element 238) to shift the increased frequency of the digital baseband. Note that by increasing the frequency of the digital baseband signal using the up sampler, the selected frequency at the output of the I/Q modulator is automatically greater than the bandwidth of the baseband signal.

It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Ocenasek into Kumar as to convert the digital baseband into undistorted digital signal as taught by Ocenasek (see paragraph [0025]).

As per claim 3, Kumar teaches further including: a phase shifting module to receive the digital baseband signal and to provide the phase-shifted version of the digital baseband signal (see fig.15 element 205 and paragraph [0084-0085]).

As per claim 5, Kumar teaches further including: a digital to analog converter to receive the first elevated frequency digital baseband signal and to provide an analog signal (see figs. 11 and 17 element 91 and page 11 [0068]).

As per claim 6, Kumar inherently teaches further including: an image reject mixer to receive the analog signal and a carrier signal (see page 11 [0068] and [0091]).

As per claim 7, Kumar teaches further including: a filter to pass a non-rejected (see fig.17 element 72 or 78 and page 11[0068] and page 16 [0089]) sideband signal provided by the image reject mixer.

As per claim 8, Kumar teaches, wherein the digital baseband signal is formatted according to an Institute of Electrical and Electronics 3 Engineers 802.11 standard (see paragraph [0010]).

As per claim 9, Kumar teaches an apparatus, including: a first digital mixer to receive a digital baseband signal and to shift the baseband signal upward along a frequency spectrum by a selected amount of frequency shift to provide a first elevated frequency digital baseband signal (see fig.15 element 219); a phase shifting module to receive the digital baseband signal and to provide a phase-shifted version of the digital baseband signal (see fig.15 element 205); a second digital mixer to receive the phase-shifted version of the digital baseband signal and to shift the phase shifted version of the digital baseband signal upward along the frequency spectrum by the selected amount of frequency shift , to provide a second elevated frequency digital baseband signal (see fig.15 element 209); and a to digital analog converter to receive a selected one of the first elevated frequency digital baseband signal and the second elevated 11 frequency digital baseband signal and to provide an analog signal to an 12 image reject mixer (see figs. 11 and 17 element 91 and page 11 [0068]).

However Kumar does not teach, wherein the selected amount is greater than about a bandwidth of the digital baseband signal.

Ocenasek et al teaches an up sampler device (see fig.2 element 226) for increasing the frequency of a digital baseband signal (see fig.2 elements Ich or Qch) which are provided to a I/Q modulator (see fig.2 element 238) to shift the increased frequency of the digital baseband. Note that by increasing the frequency of the digital baseband signal using the up sampler, the selected frequency at the output of the I/Q modulator is automatically greater than the bandwidth of the baseband signal.

It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Ocenasek into Kumar as to convert the digital baseband into undistorted digital signal as taught by Ocenasek (see paragraph [0025]).

As per claim 10, Kumar teaches band pass filter to separate the outer or inner sideband (see paragraph [0029]). Furthermore implementing such filter as a surface acoustic wave filter to pass a non-rejected sideband signal provided by the image reject mixer into Kumar would have been obvious to one skill in the art as to accomplish the desired frequency translation as taught by Kumar (see [0068]).

As per claim 11, Kumar teaches further including: an analog mixer to combine a synthesized carrier signal (see fig.12 element 90) and a filtered sideband signal derived from a non-rejected sideband signal provided by the image reject mixer.

As per claim 12, Kumar teaches system, including: a digital processor to shift a digital baseband (see figs. 11, 15 and 17 elements 61, 60, 58) signal upward along a frequency spectrum by a selected amount of frequency shift to provide a first elevated frequency digital baseband signal (see fig.15 element 219) and a second elevated

frequency digital baseband (see fig.15 element 209) signal derived from a phase-shifted version (see fig.15 element 205) of the digital baseband signal (see page 15 [0084-0085] and page 16 [0086-0089]); and an Omni-directional antenna to transmit (see figs. 11 and 17 output of element 95 and page 11 [0068]) communications signal derived from the first elevated frequency digital baseband signal.

However Kumar does not teach, wherein the selected amount is greater than about a bandwidth of the digital baseband signal.

Ocenasek et al teaches an up sampler device (see fig.2 element 226) for increasing the frequency of a digital baseband signal (see fig.2 elements Ich or Qch) which are provided to a I/Q modulator (see fig.2 element 238) to shift the increased frequency of the digital baseband. Note that by increasing the frequency of the digital baseband signal using the up sampler, the selected frequency at the output of the I/Q modulator is automatically greater than the bandwidth of the baseband signal.

It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Ocenasek into Kumar as to convert the digital baseband into undistorted digital signal as taught by Ocenasek (see paragraph [0025]).

As per claim 13, Kumar and Ocenasek in combination would teach display-to-display information associated with the digital baseband signal as to provide better undistorted digital signal in order to accomplish the desired frequency translation.

As per claim 14, Kumar teaches further including: a digital mixer to receive a selected one of the digital baseband signal (see fig.15 element 219); and the phase-

shifted version (see fig.15 element 205) of the digital baseband signal (see page 15 [0084-0085] and page 16 [0086-0089]) and to provide the first elevated frequency digital baseband signal and the second elevated frequency digital baseband signal, respectively (see fig.15 element 209).

As per claim 15, Kumar teaches, further including: a filter (see fig.17 element 78 and page 11[0068] and page 16 [0089]) to pass an analog signal provided by a digital to analog converter to receive a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband signal.

As per claim 16, Kumar teaches wherein the Omni directional antenna is included in diversity receiver system (see paragraph [0071]) is the same as the claimed a multiple-input, multiple-output communications system.

As per claim 17, Kumar and Ocenasek in combination would teach, wherein the communications signal is formatted according to an Advanced Television Systems Committee (ATSC) standard as to provide better undistorted digital signal in order to accomplish the desired frequency translation.

As per claim 19, Kumar teaches, further including: mixing the digital baseband signal with a digital carrier frequency to provide the first elevated frequency digital baseband signal (see fig.15 element 219 and fig.17).

As per claim 20, Kumar and Ocenasek in combination would teach: selecting a mixing technique from a Weaver technique and a Norgaard technique as to accomplish the desired frequency translation as taught by Kumar (see [0068]).

As per claim 21, Kumar teaches further including: mixing the phase-shifted version of the digital baseband signal with a digital carrier frequency to provide the second elevated frequency digital baseband signal (see fig.15 element 209).

As per claim 22, Kumar teaches further including: converting a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband to a first analog signal and a second analog signal, respectively (see fig.12 elements 96).

As per claim 23, Kumar teaches further including: mixing the first analog signal and the second analog signal with a carrier frequency to provide an output signal; and (see page 11 [0068]) rejecting a resulting lower sideband signal from the output signal.

As per claim 24, Kumar teaches further including: processing the output signal to provide a vestigial sideband television signal (see page 11 [0065] [0068])).

As per claim 25, Kumar teaches further including: formatting the digital baseband signal according to an Institute of 3 Electrical and Electronics Engineers 802.11 standard (see paragraph [0010])..

As per claim 27, Kumar teaches converting the first elevated frequency digital baseband signal into a first analog sideband signal (see fig.12 elements 96); and converting the second elevated frequency digital baseband signal into a second analog sideband signal (see fig.12 elements 96)

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar U.S. Pub No 20010024475 A1 in view of Ocenasek et al U.S Pub No 20040032912 and in further view of Dent U.S. Patent No .5,351,016.

As per claim 28, Kumar and Ocenasek in combination teach all the features of the claimed invention except combining the first analog sideband signal and the second analog sideband signal to provide a non-rejected sideband signal modulated by an analog carrier frequency.

Dent teaches a summer for (combining) the first analog sideband signal and the second analog sideband signal to provide a non-rejected sideband signal modulated by an analog carrier frequency (see fig.3 element 114).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Dent into Kumar and Ocenasek as to self adjusting the quadrature modulator using numerical adjustments by adding offsets to achieve carrier balance as taught by Dent (see col.6, lines 5-12).

As per claim 29, Kumar and Ocenasek in combination teach all the features of the claimed invention except filtering the non-rejected sideband signal to provide a filtered sideband signal; and combining the filtered sideband signal with a synthesized carrier signal 6 to provide a communications signal.

Dent teaches filtering the non-rejected sideband signal to provide a filtered sideband signal; and combining the filtered sideband signal with a synthesized carrier

signal 6 to provide a communications signal (see fig.3 elements 115 and 120 and col.13, lines 1-25).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Dent into Kumar and Ocenasek as to permit correction of errors arising in post-modulator components as taught by Dent (col.13, lines 23-25).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4. Mollenkopf et al U.S. Pub No 2003/0227896 A1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571 272 3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

11/1/2008

Emmanuel Bayard
Primary Examiner
Art Unit 2611

/Emmanuel Bayard/
Primary Examiner, Art Unit 2611